REMARKS

Per the Examiner's January 31, 2002 voice mail, substitute drawings do not need to be submitted in this response to overcome the Draftsperson's objections in paragraph 2 of the official action. The abstract has been amended to overcome the Examiner's objections in paragraph 3 of the official action. A substitute specification with lines double spaced has been provided to overcome the examiner's objection in paragraph 4 of the official action. The specification has been amended to overcome the Examiner's objections in paragraph 5 of the official action. Substitute claims with lines double spaced have been provided to overcome the Examiner's objections in paragraph 6 of the official action.

Claim 1 has been rejected under 35 U.S.C. §112, paragraphs 1 and 2, and 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,212,484 to Chen ("Chen").

Claim 1 has been rejected under 35 U.S.C. §112 paragraph 1 as containing subject matter which was not described in such a way as to enable one skilled in the art to make, and/or use the invention. Applicant respectfully traverses this rejection. The Examiner has rejected Claim1 because one skilled in the art may select a transformation function such that f=0, in which case all points of the new geometry will be at the origin. Applicant respectfully submits that one skilled in the art could select f=0 as the transformation function if one desires to transform the geometry such that all points are at the origin.

The Examiner also states that it is unclear how one skilled in the art could warp the model leaving the topology the same because a transformation function can be defined in which several positions of the original vertices are transformed to the same new position. Applicant respectfully traverses the Examiner's rejection. As stated beginning on page 2,

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line 44 of the specification, "[t]he topology of the model indicates how the faces, edges and vertices of the model connect to each other, while the geometry of the model indicates the location of the points underlying the model and its component parts in space." The claimed invention transforms the geometry of the model (i.e., the location of the points of the model in space) without modifying the topology (i.e., the relationship between faces and vertices). Even if a transformation function is defined such that multiple positions in the original geometry corresponding to vertices of the topology are transformed into the same geometric locations, the relationship between the vertices of the topology and their connections to edges and faces will not be affected.

The Examiner also states that variables x, y and z defined in the domain of function $f \bullet s1(x, y, z)$ at page 5, line 28 is contradictory to the definition of function $s1(u, v)$ at page 5, line 23, and that the definition of functions $f \bullet c1(x, y, z)$ and $c1(t)$ are similarly contradictory. Applicant respectfully traverses the Examiner's rejection. Function $s1(u, v)$ at page 5, line 23 is a surface function. Surface functions are explained on page 3, beginning on line 40 as mapping points from a two-dimensional space (u,v) to a three-dimensional space (x,y,z). Similarly, function $c1(t)$ at page 5, line 33 is a curve function. Curve functions are explained beginning on page 4, line 13 as mapping points from a one-dimensional space (t) to a three-dimensional space (x,y,z). Applicant respectfully submits that the function definitions are not contradictory.

The Examiner has rejected Claim 1 under 35 U.S.C. §112, paragraph 2 as indefinite because the preamble recites "an arbitrary function." Applicant has amended claim 1 to delete the word "arbitrary". Applicant respectfully traverses the Examiner's presumption

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that "arbitrary function" refers to a "mirroring function". To the extent the preamble of claim 1 is considered a limitation, the function may be any transformation function, as explained in the specification. Claim 1 has also been amended to correct typographical errors and to improve comprehensibility.

The Examiner has rejected Claim 1 under 35 U.S.C. 102 as anticipated by Chen. Applicant respectfully traverses this rejection. Claim 1 recites, in part, the steps of defining a transformation function mapping from 3-dimensional space to 3-dimensional space and creating new surface and curve functions by performing function composition with each of the existing surface and curve functions with the transformation function. Chen does not teach or suggest such steps. Chen describes a simple mirroring transformation using a linear transformation matrix and matrix multiplication. Chen does not disclose the ability to define any transformation function, and does not teach or suggest performing function composition with the transformation function. Applicant stated in the Background section of the specification, beginning at page 1, line 11 that "[c]ommon applications of geometry transformation include moving, scaling and rotating models, which merely apply a linear transformation to the model's geometry." As such, Chen merely illustrates the prior art of known linear transformations.

If the Examiner would like additional explanation regarding the differences between Chen and the present invention, Applicant invites the Examiner to schedule an interview at the Examiner's convenience.

Applicant respectfully requests that a timely notice of allowance be issued in this case.

Respectfully submitted,

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